

"DATA/SAVE" COMMANDS

Normal BASIC includes those commands necessary to save and reload programs that the operator has written. As a result, programs to play games, compute payrolls, balance your checkbook, or do book-keeping need only be prepared once - and can be stored on tape for future use. Unfortunately, with the normal BASIC interpreter, each time that you run these programs, you are starting out "fresh". In other words, all computed data from an earlier run of the program is lost forever and must be re-calculated or manually re-inserted.

Micro-Z has expanded the Microsoft 6502 BASIC interpreter in two very important ways:

First - Extra commands are added that permit you to record on tape and reload both computed numerical data and strings. To illustrate how important this is, consider a payroll program where you have computed each employee's pay, federal income tax, Social Security deductions, etc. With the "DATA/SAVE" commands, you can store these computed values on tape. The next time that you run the program, you can re-enter these from tape directly into the program and add them to the new pay-period values. Consequently, it is now possible to keep "year-to-date" files for each employee for printing out income tax forms, etc.

These "DATA/SAVE" commands also have use in personal computing programs, such as maintaining your checkbook, accumulating home or car principal and interest payments, maintaining files for income tax purposes, etc. With these commands, unique to the Micro-Z version of BASIC, your KIM becomes a valuable tool for home or office.

Second - Hypertape is built-in to the BASIC program. Whenever you use any "SAVE" command - Hypertape is utilized to record on tape at six times the normal KIM speed. In fact, BASIC itself can be re-recorded using the built-in Hypertape.

Micro-Z has made other modifications to customize the BASIC interpreter to the KIM computer, and simplify operation of the program. For example, each time that you leave BASIC, the program computes the proper re-entry address automatically. It makes no difference whether you have just completed storing a program on tape, loaded a tape program into the computer, or have returned to the KIM monitor - pressing the "G" key on your terminal returns you immediately to BASIC through the proper entry point. There is no need for you to remember and program different addresses.

ADAPTING "ZIP-TAPE"

"ZIPTAPE" will permit loading the complete BASIC program in 12 to 15 seconds as it operates at 4800 baud. We have been extremely pleased with the operation of this program/circuit board. It is available from Lewis Edwards, Jr., 1451 Hamilton Ave., Trenton, N. J. for approximately \$25.00 to \$28.00.

If the operator desires, "ZIPTAPE" may be utilized to SAVE and LOAD both programs and data that are written in the Micro-Z version of Microsoft KIM BASIC. This is particularly useful if the ZIP-TAPE is stored in EPROM.

However, the Microsoft BASIC is programmed to read the address listed in locations 17ED and 17EE after a tape load - to get the highest address of the program (for memory allocation purposes). Consequently, a minor change is necessary in the LOAD ZIPTAPE routine to put the address of the top of the recorded program into 17ED/17EE.

- 1) Change the following addresses:

026C	A9
026D	02

- 2) Add the following addresses:

02A9	A6	02B0	8D
02AA	FA	02B1	EE
02AB	A5	02B2	17
02AC	FB	02B3	4C
02AD	8E	02B4	25
02AE	ED	02B5	19
02AF	17		

The changed addresses in 1) simply jump to the end of the program and the added commands in 2) take the address in locations 00FA and 00FB and load this in 17ED/17EE - finally jumping to location 1925 (which was originally in 026C/026D).

From the User's Manual, Appendix A - page 3A, a list of addresses may be found that permit the operator to replace the normal Micro-Z KIM BASIC jump addresses for KIM tape playback and Hypertape with jumps to ZIPTAPE record and load routines. Take particular note of locations 2782, 43F3, 27A3, and 4441. Wherever a jump to 1873 (4C 73 18) appears, change to the LOAD ZIPTAPE addresses. In the same manner, wherever a jump to 42B8 (starting address of hypertape) appears, change to the DUMP ZIPTAPE starting address.

After making these changes, and before BASIC is initialized, the modified BASIC program should be stored on a separate cassette.

EPROM BASIC

KIM BASIC may be placed in EPROM if two minor changes are made in the program prior to programming in EPROM -

1. Set the USR function.

BASIC looks at addresses \$2040 and \$2041 for the location of the USR program. Prior to inserting your program in EPROM pick a known location, such as \$0300, and place this address in \$2040 and \$2041 as follows:

\$2040	00
\$2041	03

If you decide to use the USR function in a program at a later date, simply insert a 4C XX YY at location \$0300 - where XX and YY are the low and high bytes of the address of your machine language program. Be sure to end your machine-language program with an RTS.

2. Set the new RAM START address.

BASIC is set initially to start the programs and data in location \$44B0. If you have your RAM in a different address - 4 locations must be changed in BASIC prior to placing in EPROM:

\$40CE and \$4148 - insert Low Byte of new RAM address.

\$40D0 and \$414A - insert High Byte of new RAM address.

You will note that these addresses now contain B0 and 44, respectively.

BASIC itself should still reside from \$2000 to \$44B0. The RAM can be located anywhere - but must be in one continuous string.